# Wireless Multi-Function Access Point

## A02-AP-W54

## MANUAL

A02-AP-W54 _ME01

# INDEX

CHAPTER 1: INTRODUCTION 1

1.1 An Overview of the del Wireless Multi-Function Access Point 1

1.2 Package Contents 2

1.3 Wireless Multi-Function Access Point Features 2

1.4 System Requirements 3

1.5 Setup 3

1.6 Location 4

CHAPTER 2: USING WIRELESS MULTI-FUNCTION ACCESS POINT 5

2.1 Cautions for using the Wireless Multi-Function Access Point 5

2.2 The Front LEDs 6

2.3 The Rear Ports 6

2.4 Cabling 7

CHAPTER 3: CONFIGURATION 8

3.1 Before Configuration 8

3.1.1 Windows 95/98/ME 9

3.1.2 Windows NT4.0 10

3.1.3 Windows 2000 11

3.1.4 Windows XP 12

3.2 Default Settings 13

3.2.1 Password 13

3.2.2 LAN WLAN 13

3.3 Accessing the Access Point Web Configurator 14

3.3.1 Navigating the Access Point Web Configurator 15

3.4 Network 16

3.4.1 LAN Setup 16

3.4.2 Wireless Settings 17

3.4.3 WDS Links 19

3.5 Security 23

3.5.1 Access Control List 24

3.5.2 Radius Servers 24

3.5.3  Wired Equivalent Privacy (WEP) 25
3.5.4 802.1x Security 26
3.5.5 Wi-Fi Protected Access (WPA) 27
3.6 Status 28
3.6.1 Status 28
3.6.2 Wireless Statistics 29
3.6.3 Event Report 29
3.7 Clients 30
3.7.1 Wireless Clients 30
3.7.2 Access Point 30
3.8 Tools 31
3.9 Configurations 32
3.9.1 Change Password 32
3.9.2 Lock Access Point 32

**APPENDIX A: TROUBLESHOOTING 33**
A.1 Using LEDs to Diagnose Problems 33
A.1.1 LED Power 33
A.1.2 LED LAN 33
A.1.3 LED WLAN 34
A.2 WEB 34
A.3 Login 35
A.4 FAQ 36

**APPENDIX B: TECHNICAL FEATURES 39**

**APPENDIX C: SUPPORT 40**

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## Wireless LAN, Health and Authorization for use

Radio frequency electromagnetic energy is emitted from Wireless LAN devices. The energy levels of these emissions however are far much less than the electromagnetic energy emissions from wireless devices like for example mobile phones. Wireless LAN devices are safe for use frequency safety standards and recommendations. The use of Wireless LAN devices may be restricted in some situations or environments for example:

·On board of airplanes, or

·In an explosive environment, or

·In case the interference risk to other devices or services is perceived or identified as harmful

In case the policy regarding the use of Wireless LAN devices in specific organizations or environments (e.g. airports, hospitals, chemical/oil/gas industrial plants, private buildings etc.) is not clear, please ask for authorization to use these devices prior to operating the equipment.

## Regulatory Information/disclaimers

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The Manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, of the substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

**CE Mark Warning**

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

**CE in which Countries where the product may be used freely:**

Germany, UK, Italy, Spain, Belgium, Netherlands, Portugal, Greece, Ireland, Denmark, Luxembourg, Austria, Finland, Sweden, Norway and Iceland.

France: except the channel 10 through 13, law prohibits the use of other channels.

**Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the
- receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices) any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interference, and

2) This device must accept any interference received, including interference that may cause undesired operation.

# CHAPTER 1: Introduction

Congratulations on your purchase of this IEEE 802.11g Wireless LAN Access Point. This manual helps to features the innovating wireless technology that can help you build a wireless network easily! This manual contains detailed instructions in operation of this product. Please keep this manual for future reference.

With a WLAN (IEEE 802.11g) Access Point, a mobile computer can share data with another mobile computer in a wireless way. Easy-to-use utilities are bundled with WLAN Access Point for configuration and monitoring purposes.

WLAN networking can wirelessly transmit and receive data, minimizing the need for wired connections, at a speed of up to Fifty-four megabit per second. With WLAN networking, you can locate your PC wherever you want without wires and cables.

WLAN networking provides users with an access to real-time information anywhere in their organization. The mobility provides productivity and service, which are not available under wired networks.

## 1.1 An Overview of the del Wireless Multi-Function Access Point

The device for a total freedom of movement without losing the connection. Easy to be installed and fast and flexible, with Wireless Multi-Function Access Point there is no more obligation for a fixed working place: you can easily work or navigate for fun from your own garden or in different rooms of your office, always in wireless connection.

The Roaming function gives you a complete freedom of movement and two or more Wireless Multi-Function Access Point can serve wireless also large headquarters.

A pair of Wireless Multi-Function APs operating under Bridge mode to act as the bridge that connect two Ethernet networks or Ethernet enabled clients together. Repeat Mode is able to extend the effective range and coverage of the wireless network.

Thanks to advanced security functions which are integrated and thanks to the troughput of the protocol IEE802.11G you are going to have a fast and flexible wireless net, hacker safe.

The chipsets fully support Wi-Fi Protected Access (WPA) and the IEEE 802.11i draft security standards in hardware and high-speed encryption engines with no performance degradation.

Last, but not least, this product implements Intersil Nitro GT™ capabilities to deliver up to a 3x improvement in throughput for 802.11g clients operating in mixed-mode wireless networks, and up to 50 percent greater throughput performance in 802.11g only networks.

## 1.2 Package Contents

Unpack the package and check all the items carefully. If any item contained is damaged or missing, please contact your local dealer as soon as possible. Also, keep the box and packing materials in case you need to ship the unit in the future. The package should contain the following items:

- Wireless Multi-Function Access Point
- CDRom with Manuals (English, Italian and French)and Quck Start Guide
- Quick Start Guide (English)
- Cable CAT5 LAN
- AC-DC Adapter (5V DC@1,2A)
- 2 x 2.2 dBi Antennas
- Warranty Card

## 1.3 Wireless Multi-Function Access Point Features

Wireless Multi-Function Access Poin provides the following features:

- **IEEE 802.11g** and **IEEE 802.11b**: With built-in 802.11g access point for extending the communication media to WLAN while providing the WEP and WPA for securing your wireless networks.
- **Wi-Fi Protected Access (WPA) and WEP encryption**: Thanks to advanced security functions which are integrated and thanks to the troughput of the protocol IEE802.11G you are going to have a fast and flexible wireless net, hacker safe. The chipsets fully support Wi-Fi Protected Access (WPA) and the IEEE 802.11i draft security standards in hardware and high-speed encryption engines with no performance degradation.
- **WDS**: A pair of Wireless Multi-Function APs operating under Bridge mode to act as the bridge that connect two Ethernet networks or Ethernet enabled clients together. Repeat Mode is able to extend the effective range and coverage of the wireless network.
- **Nitro GT™**: this product implements Intersil Nitro GT™ capabilities to deliver up to a 3x improvement in throughput for 802.11g clients operating in mixed-mode wireless networks, and up to 50 percent greater throughput performance in 802.11g only networks.
- **2 Antennas:** 2 x 2 dBi Dipole detachable Antennas (SMA)
- **1 port Fast Ethernet:** A fast Ethernet 10/100Mbps port is supported in the LAN site and automatic switching between MDI and MDI-X for

10Base-T and 100Base-TX ports is supported. An Ethernet straight or cross-over cable can be used directly, this fast Ethernet switch will detect it automatically.

- **Mac Filtering (ACL):** Access Control function allows clients whose MAC addresses in the list will be able to connect to this Access Point.
- **Web based GUI:** supports web based GUI for configuration and management. It is user-friendly with an on-line help, providing necessary information and assist user timing. It also supports remote management capability for remote users to configure and manage this product.
- **Firmware Upgrade :** the device can be upgraded to the latest firmware through the WEB based GUI.

## 1.4 System Requirements

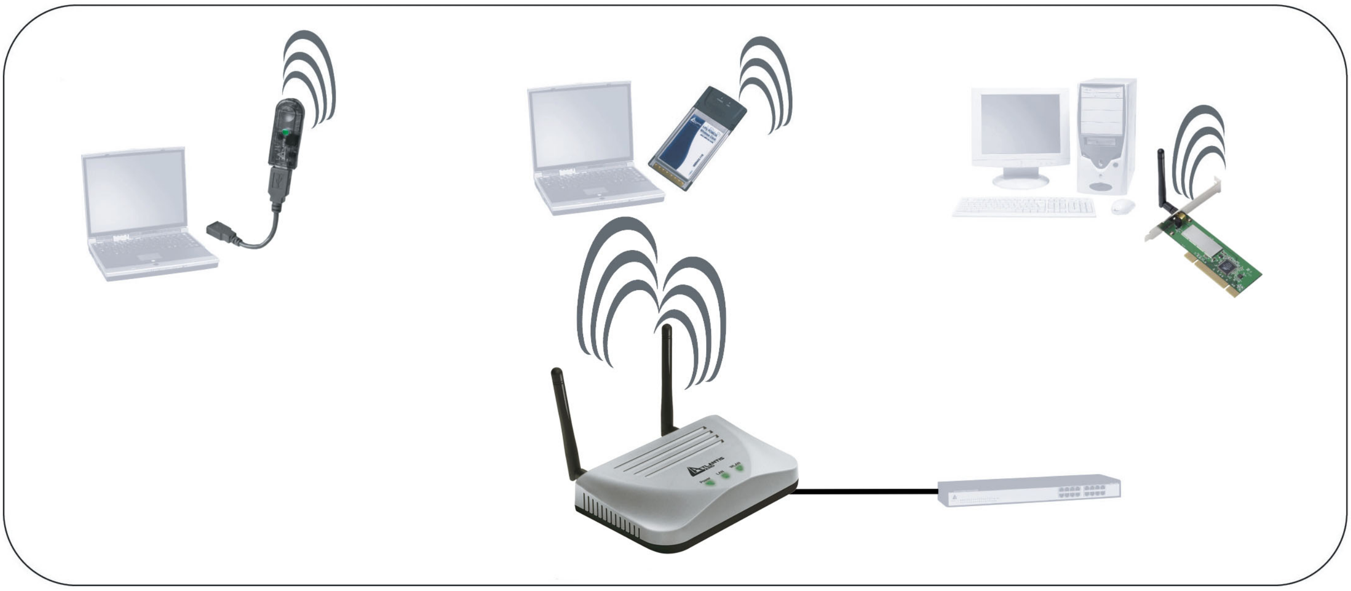
Before installing the device, your PC should meet the following:

- Intel® Pentium®III 600Mhz or compatible processor with TCP/IP stack
- Iinternet Explorer V6.0 on Netscape V6.0
- CDRom

## 1.5 Setup

The setup of the Wireless Multi-Function Access Point can be performed using the following steps:

- Visually inspect the Ethernet RJ45 port connector and make sure that it is fully plugged in to the system's Ethernet switch/hub port.
- Fix the direction of the antennas. Try to place the AP in a position that can best cover your wireless network. Normally, the higher you place the antenna, the better the performance will be. The antenna's position enhances the receiving sensitivity.
- Visually inspect if the Power Adapter was fully plugged to the device power jack (Connect the Power Adapter DC plug to the AP's power jack **DC-IN**).



## 1.6 Location

Locate an optimum location for the Wireless LAN Access Point (AP). The best place for your AP is usually the center of your wireless network, with line of sight to all of your mobile stations.

Try to place the AP in a position that can best cover your wireless network. Normally, the higher you place the antenna, the better the performance will be. The antenna's position enhances the receiving sensitivity.

# CHAPTER 2: Using Wireless Multi-Function Access Point

## 2.1 Cautions for using the Wireless Multi-Function Access Point

- Do not place the Wireless Multi-Function Access Point under high humidity and high temperature.
- Do not use the same power source for Wireless Multi-Function Access Point with other equipment.
- Do not open or repair the case yourself. If the Wireless Multi-Function Access Point is too hot, turn off the power immediately and have a qualified serviceman repair it.
- Place the Wireless Multi-Function Access Point on a stable surface.
- Only use the power adapter that comes with the package.
- Do NOT upgrade firmware on any Atlantis Land product over a wireless connection. Failure of the device may result. Use only hard-wired network connections.

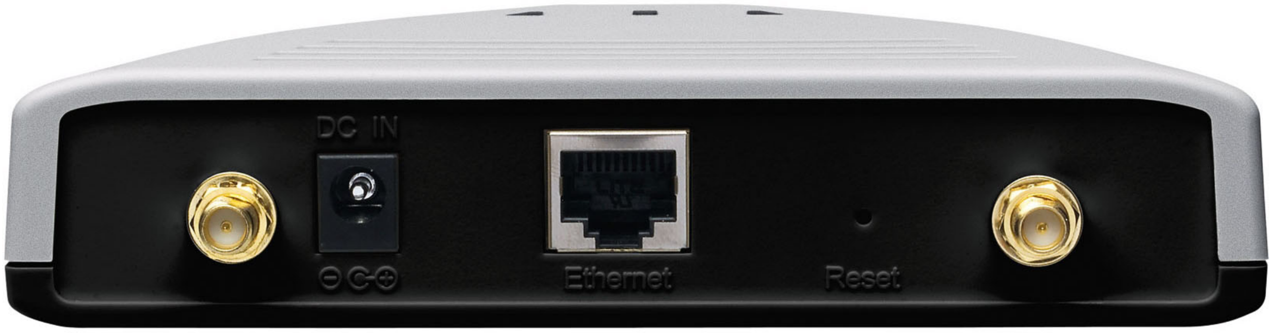
## 2.2 The Front LEDs

The table below shows the LED Indicator of the Wireless Multi-Function Access Point.

| LED | Meaning |
|---|---|
| **POWER** | This indicator lights green when the Access Point receives power. Otherwise, it turns off. |
| **LAN** | The indicator lights green when the LAN port is connected to a 100Mbps Ethernet station, the indicator blinks green while transmitting or receiving data on the 100Mbps Ethernet network. |
| **WLAN** | The indicator always blinks green while the wireless AP is always broadcasting packets. |

## 2.3 The Rear Ports

The figure below shows the rear panel of the Wireless Multi-Function Access Point.



| Port | Meaning |
|---|---|
| **Reverse SMA Connectors** | There are two antennas in the rear panel, when you need to connect extended Antenna, connect to Antenna 2 for the extended antenna. When you are using one antenna model, connect the extended antenna directly to the antenna screw in the rear panel. |
| **LAN** | Ethernet uplink port with 10/100Mbps Fast Ethernet connections, connect this port to switch/hub. |
| **Reset** | The Reset function is to reset the setting back to factory default setting, once you press the "**RESET**" button within 10 seconds, the LED of the WLAN will turn off. And when the Access Point is ready, the WLAN LED will start blinking.<br>And the other function is when the AP is locked, press the reset button to unlock it. |
| **POWER (DC-IN)** | Connect the Power Adapter DC plug to the AP's power |

| | |
|---|---|
| | jack. |

## 2.4 Cabling

The most common problem is bad cabling ora bad Wireless configuration. Make sure that all connected devices are turned on. On the front of the product is a bank of LEDs. As a first check, verify that the LAN Link, PWR and WLAN LEDs are lit. If they are not, verify that you are using the proper cables.

# CHAPTER 3: Configuration

The Wireless Multi-Function Access Point can be configured with your Web browser. The web browser is included as a standard application in the following operation systems, UNIX, Linux, Mac OS, Windows 95/98/NT/2000/Me, and etc. The product provides a very easy and user-friendly interface for configuration.

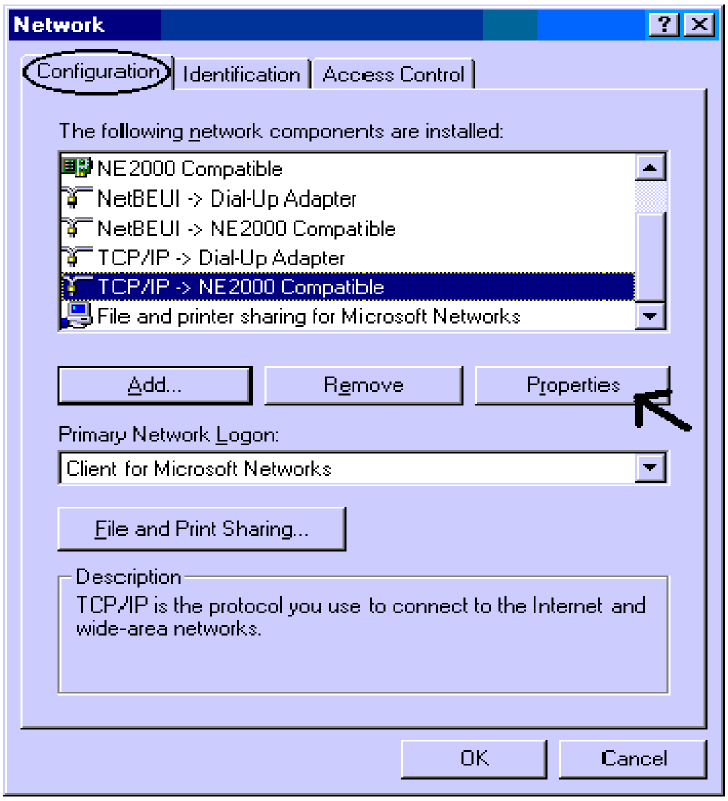
## 3.1 Before Configuration

This section describes the configuration required by LAN-attached PCs that communicate with the Wireless Multi-Function Access Point, either to configure the device or for network access. These PCs must have an Ethernet interface (or wireless adapter) installed properly, be connected to the Wireless Multi-Function Access Point either directly or through an external repeater hub or by wireless, and have TCP/IP installed and configured to obtain an IP address through a DHCP server or a fixed IP address that must be in the same subnet of the Wireless Multi-Function Access Point. The default IP address of the Wireless Multi-Function Access Point is 192.168.1.100 and subnet mask is 255.255.255.0.
Please follow the steps below for PC's network environment installation. First of all, please check your PC's network components. The TCP/IP protocol stack and Ethernet network adapter must be installed. If not, please refer to MS Windows related manuals.

NOTE:

Any TCP/IP capable workstation can be used to communicate with or through the Wireless Multi-Function Access Point to configure other types of workstations, please consult the manufacturer's documentation.

## 3.1.1 Windows 95/98/ME



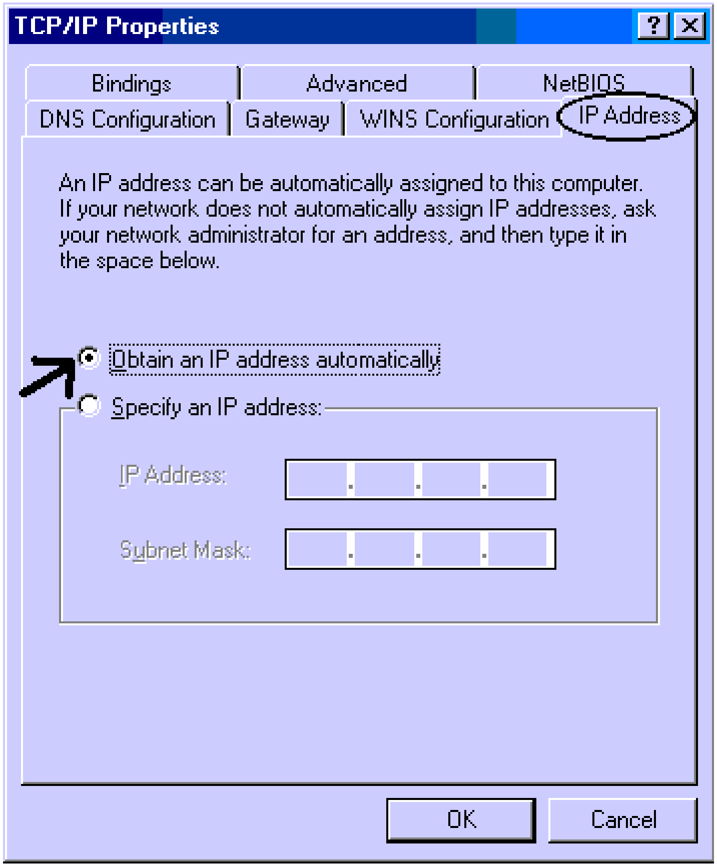
The following network components are installed:

- NE2000 Compatible
- NetBEUI -> Dial-Up Adapter
- NetBEUI -> NE2000 Compatible
- TCP/IP -> Dial-Up Adapter
- TCP/IP -> NE2000 Compatible
- File and printer sharing for Microsoft Networks

Primary Network Logon: Client for Microsoft Networks

Description
TCP/IP is the protocol you use to connect to the Internet and wide-area networks.

1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Configuration** tab.
2. Select **TCP / IP -> NE2000 Compatible**, or the name of any Network Interface Card (NIC) in your PC.
3. Click **Properties**.



An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.

● Obtain an IP address automatically

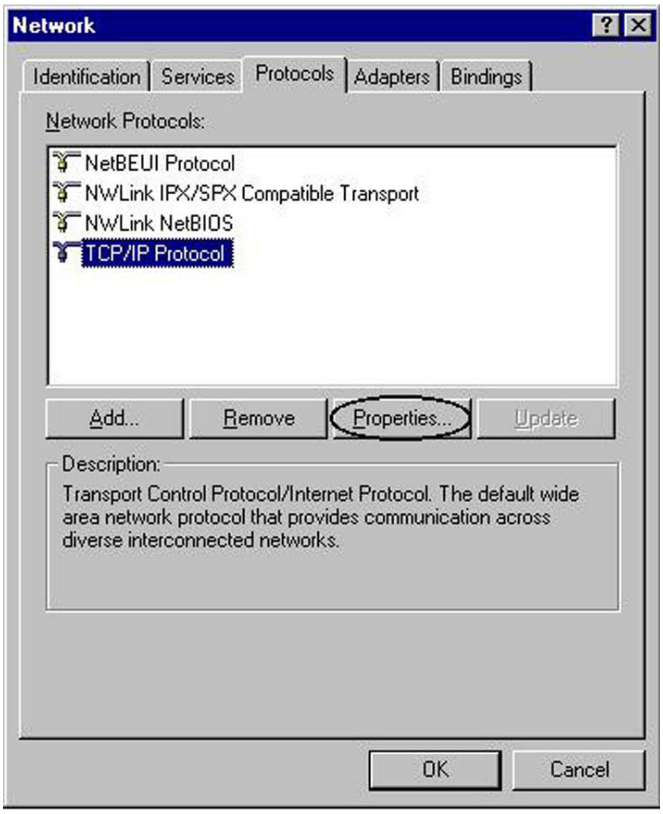
○ Specify an IP address:

IP Address: . . .

Subnet Mask: . . .

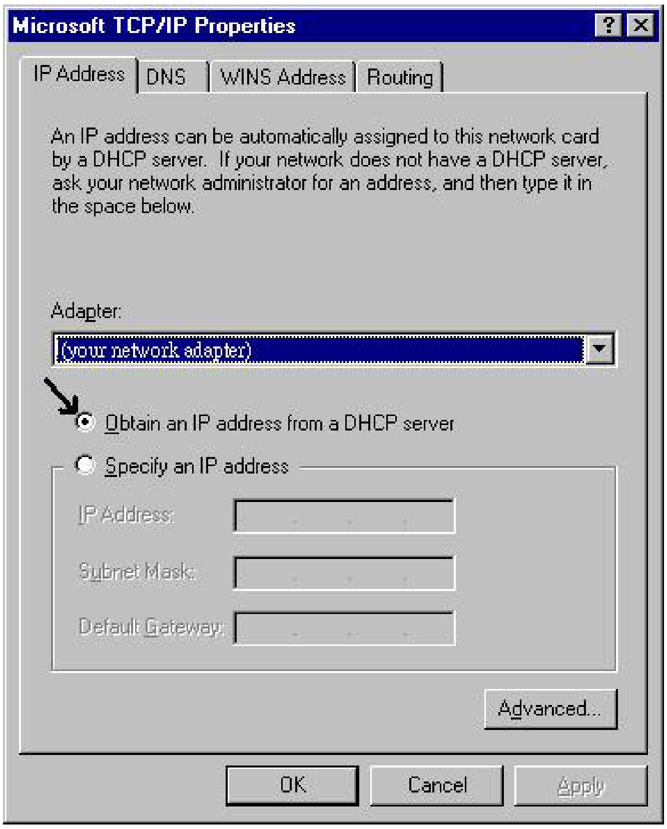
4. Select the **IP Address** tab. In this page, click the **Specify an IP address** radio button (EG IP=192.168.1.1 and subnet Mask=255.255.255.0).

## 3.1.2 Windows NT4.0



Transport Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Protocols** tab.
2. Select **TCP/IP Protocol** and click **Properties**.

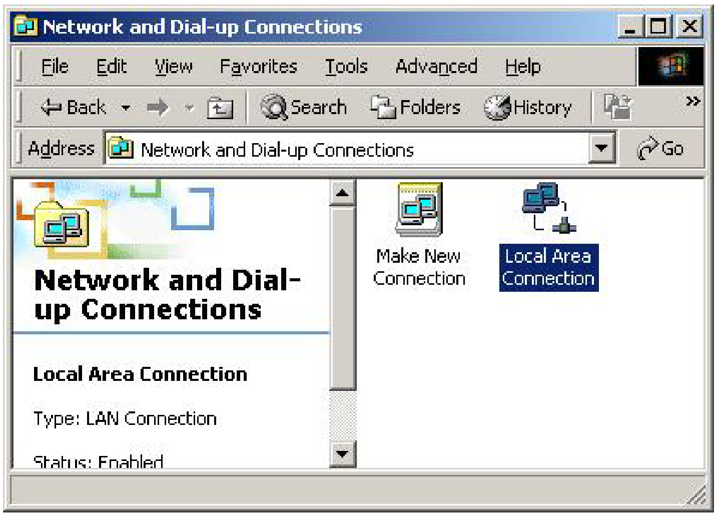


An IP address can be automatically assigned to this network card by a DHCP server. If your network does not have a DHCP server, ask your network administrator for an address, and then type it in the space below.

3. Select the **IP Address** tab. In this page, click the **Specify an IP address** radio button (EG IP=192.168.1.1 and subnet Mask=255.255.255.0).

## 3.1.3 Windows 2000

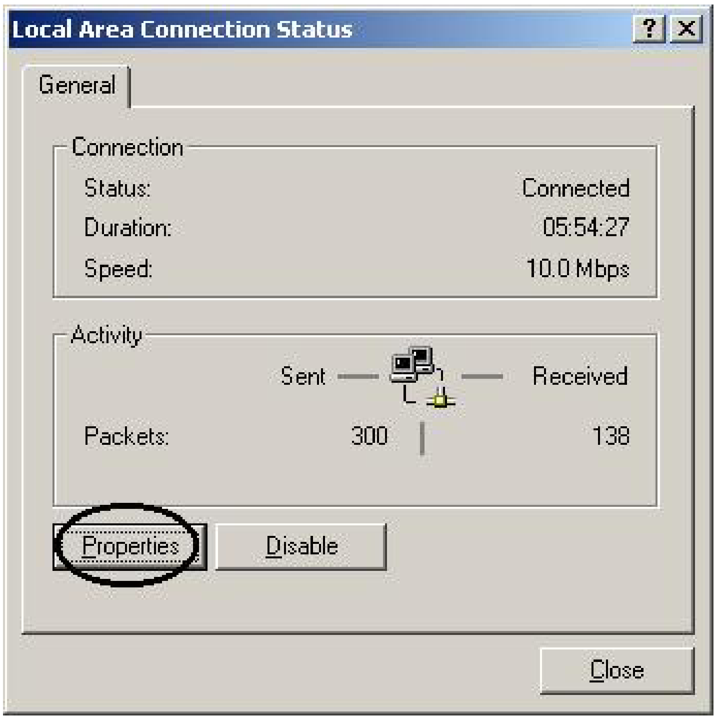
1. Go to Start / Settings / Control Panel. In the Control Panel, double-click on Network and Dial-up Connections.
2. Double-click **LAN Area Connection**.
3. In the **LAN Area Connection Status** window, click **Properties**.
4. Select **Internet Protocol (TCP/IP)** and click **Properties**.
5. Select **Use the Following IP Address** (EG IP=192.168.1.1 and subnet Mask=255.255.255.0).
6. Click **"OK"** to finish the configuration.



Local Area Connection

Type: LAN Connection

Status: Enabled



Connection

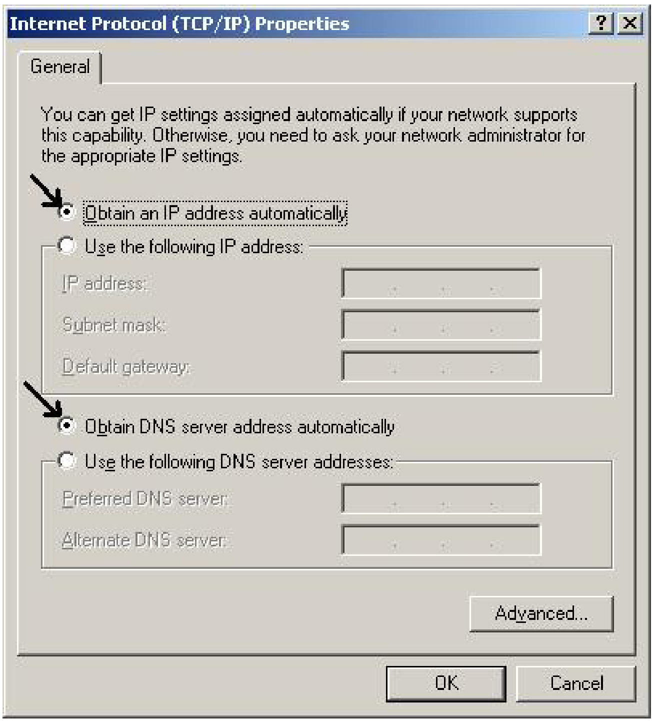
Status: Connected

Duration: 05:54:27

Speed: 10.0 Mbps

Activity

| | Sent | Received |
|---|---|---|
| Packets: | 300 | 138 |



You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

● Obtain an IP address automatically

○ Use the following IP address:

IP address:

Subnet mask:

Default gateway:

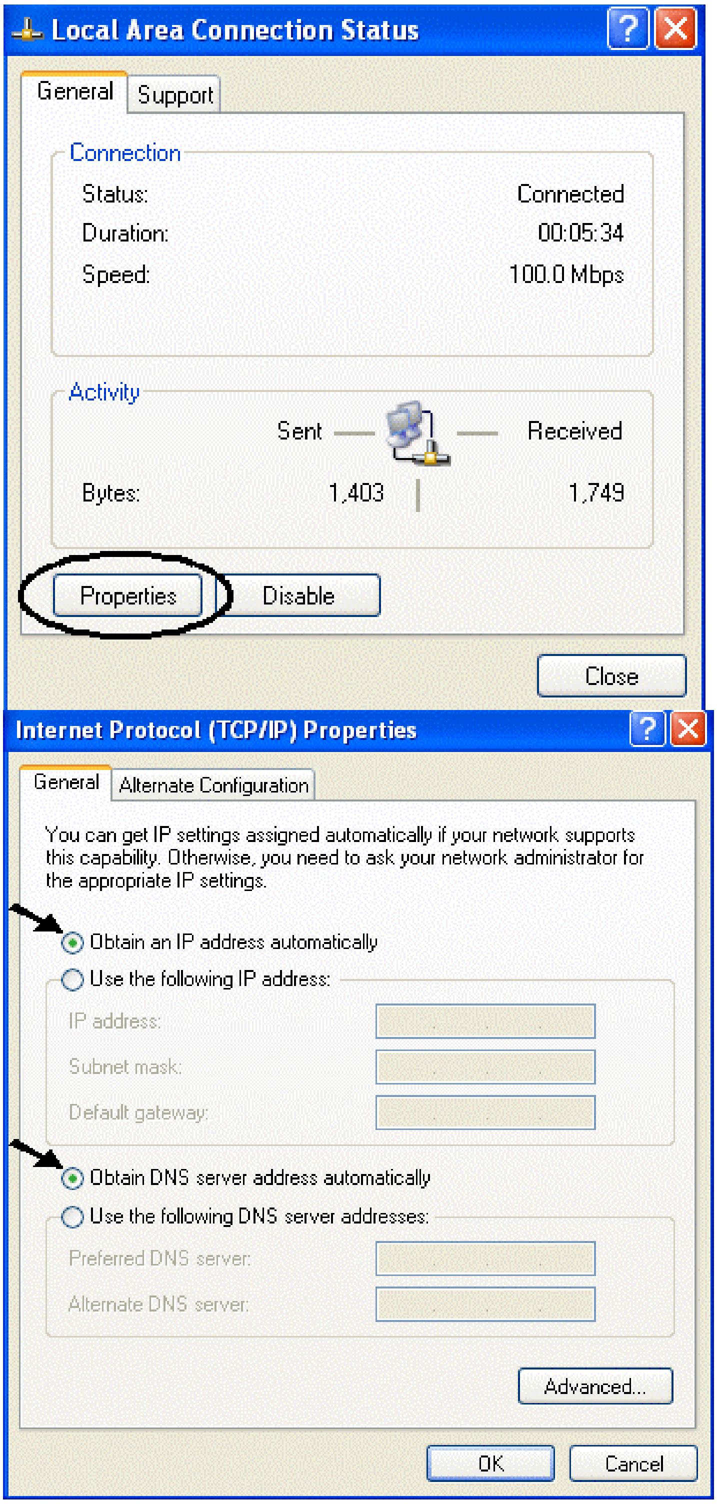
● Obtain DNS server address automatically

○ Use the following DNS server addresses:

Preferred DNS server:

Alternate DNS server:

## 3.1.4 Windows XP



**Local Area Connection Status**

General | Support

Connection

Status: Connected

Duration: 00:05:34

Speed: 100.0 Mbps

Activity

Sent — Received

Bytes: 1,403 | 1,749

**Internet Protocol (TCP/IP) Properties**

General | Alternate Configuration

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

● Obtain an IP address automatically

○ Use the following IP address:

IP address: . . .

Subnet mask: . . .

Default gateway: . . .

● Obtain DNS server address automatically

○ Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

1. Go to **Start / Control Panel** (in Classic View). In the Control Panel, double-click on **Network Connections.**
2. Double-click **Local Area Connection**
3. In the LAN Area Connection Status window, click Properties.
4. Select **Internet Protocol (TCP/IP)** and click **Properties**.
5. Select the **Use the following IP address** radio buttons (EG IP=192.168.1.1 and subnet Mask=255.255.255.0).
6. Click **"OK"** to finish the configuration.

## 3.2 Default Settings

Before configurating this Wireless Multi-Function Access Point, you need to know the following default settings.

- User:
- Password:
- IP Adrfress (**192.168.1.100**)
- Subnet Mask(**255.255.255.0**)
- Wireless: **Access Point**
- SSSID: **default**
- Channel:**6**

### 3.2.1 Password

When there is a screen needs to enter the Network password, it means that there is a password settle, type in the password you entered before. There is no need to enter any password when you first login the AP, the default setting is without password.

Type a name or leave the username dialog box empty to login, the system will check only the password that was set in the system before.

⚠ The Reset function is to reset the setting back to factory default setting, once you press the "RESET" button within 10 seconds, the LED of the WLAN will turn off. And when the Access Point is ready, the WLAN LED will start blinking.

And the other function is when the AP is locked, press the reset button to unlock it.

### 3.2.2 LAN  WLAN

The parameters of LAN and WLAN ports are pre-set in the factory.  The default values are shown below.

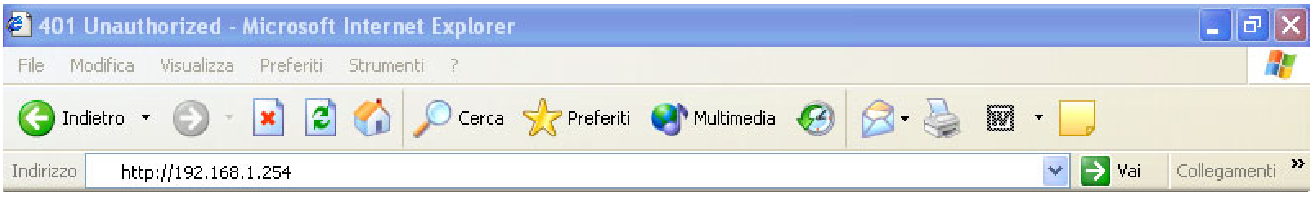
| LAN | | WLAN |
|---|---|---|
| **IP address** | 192.168.1.100 | Wireless=**Access Point**<br>Channel=**6**<br>SSID=**default**<br>Encryption=**none** |
| **Subnet Mask** | 255.255.255.0 | |

## 3.3 Accessing the Access Point Web Configurator

Before you configure this device, note that when the AP is configured through an Ethernet connection, make sure the manager PC must be set on same the **IP network**.

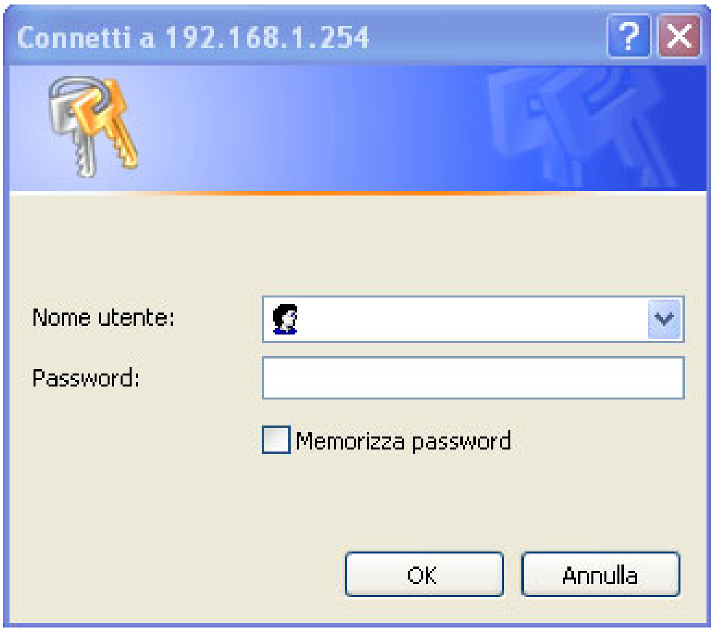
Open Internet Explorer 5.0 or above Web browser.

Enter IP address ***http://192.168.1.100*** (the factory-default IP address setting) to the address location.



Indirizzo http://192.168.1.254

Click **OK**.



Nome utente:

Password:

□ Memorizza password

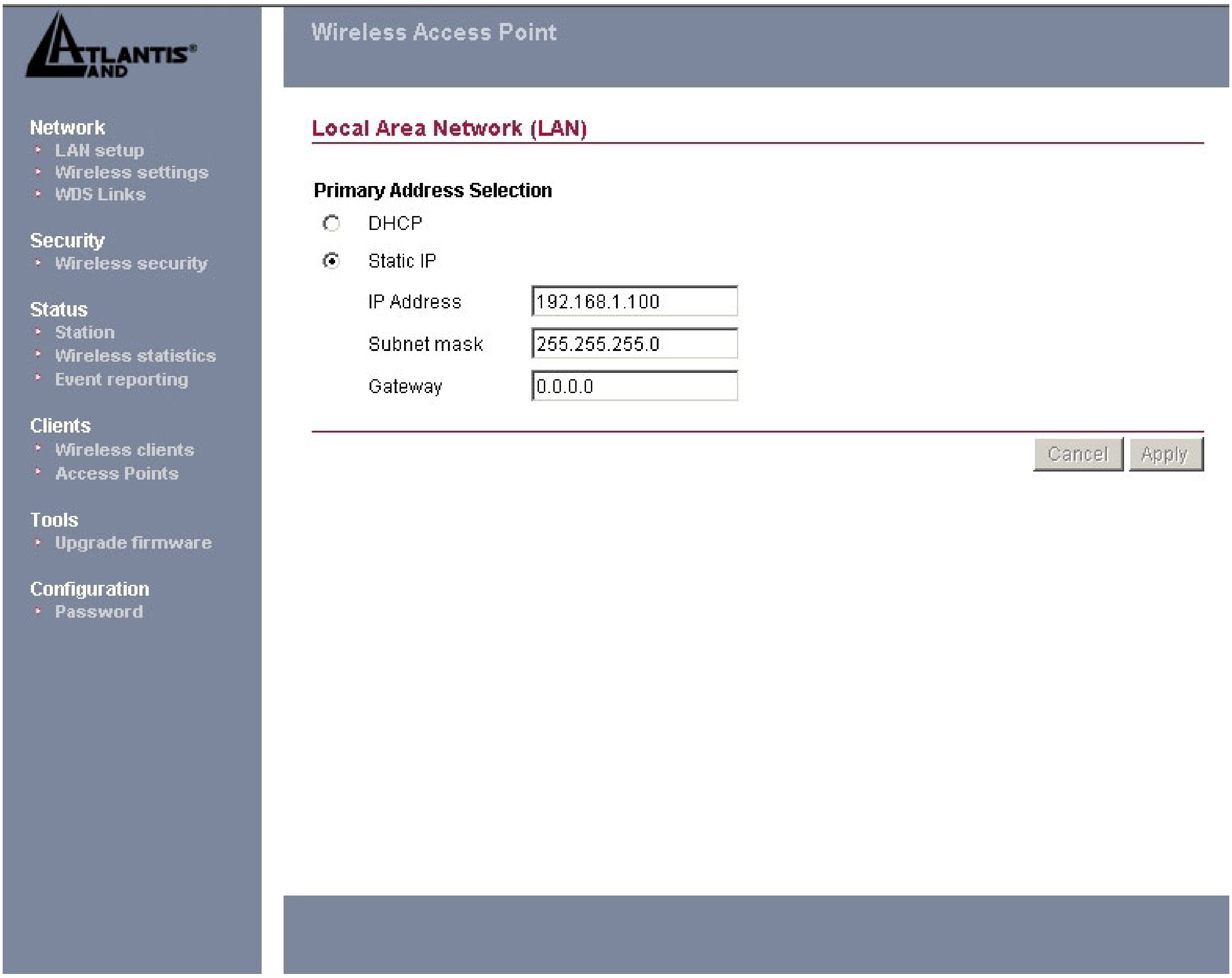
The screen will show the station summary of the AP when you login to the AP.

⚠ There is no need to enter any password when you first login the AP, the default setting is without password. When there is a screen needs to enter the Network password, it means that there is a password settle, type in the password you entered before.

Type a name or leave the username dialog box empty to login, the system will check only the password that was set in the system before.

## 3.3.1 Navigating the Access Point Web Configurator

There are six main functions included in the left side of the main screen: Network, Security, Status, Clients, Tools and Configuration. Point the selections in the left side of the menu screen.



Local Area Network (LAN)

Primary Address Selection

○ DHCP

● Static IP

IP Address 192.168.1.100

Subnet mask 255.255.255.0

Gateway 0.0.0.0

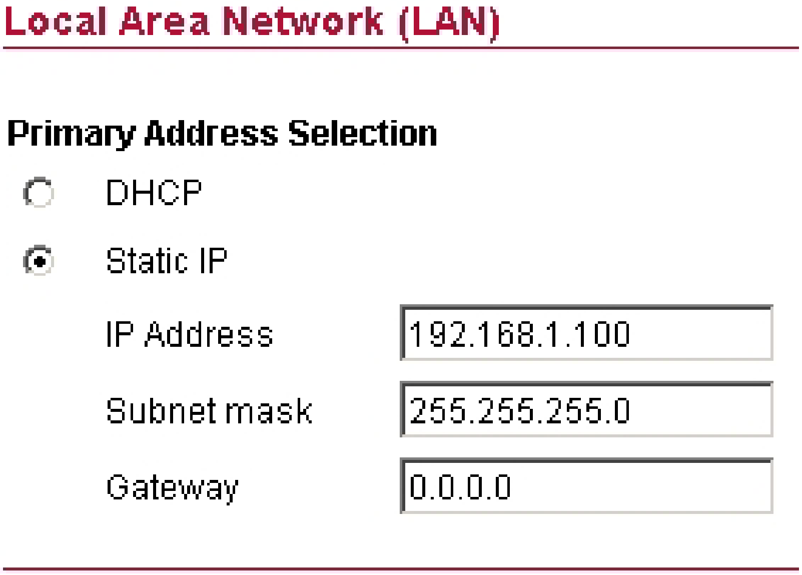
# 3.4 Network

## 3.4.1 LAN Setup

The LAN Setup function can configure the basic LAN setting:

**Dynamic (DHCP Client):** Click on the Dynamic for dynamic IP address allocation from the Server PCs.

**Static IP:** Click on the Static IP to fill up the IP Address, Subnet Mask and Gateway from the Networking Manager.



Local Area Network (LAN)

Primary Address Selection

○ DHCP

● Static IP

IP Address: 192.168.1.100

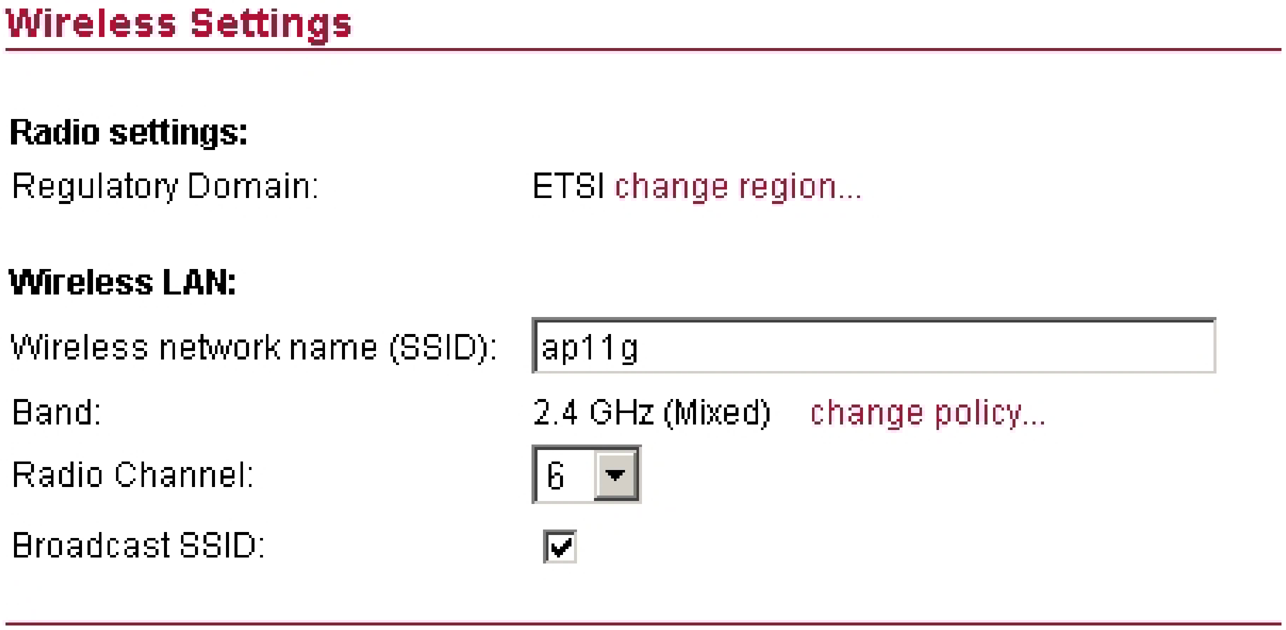
Subnet mask: 255.255.255.0

Gateway: 0.0.0.0

Click on **Apply**.

## 3.4.2 Wireless Settings

The Wireless Settings contain two settings, Radio Setting and Wireless LAN Setting.



Wireless Settings

**Radio settings:**

Regulatory Domain: ETSI change region...

**Wireless LAN:**

Wireless network name (SSID): ap11g

Band: 2.4 GHz (Mixed) change policy...

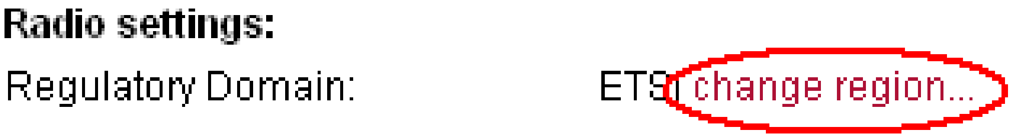
Radio Channel: 6

Broadcast SSID: ☑

**Radio Settings:** to configure the Regulatory Domain settings. This is the channel selection of each country regulatory domain.

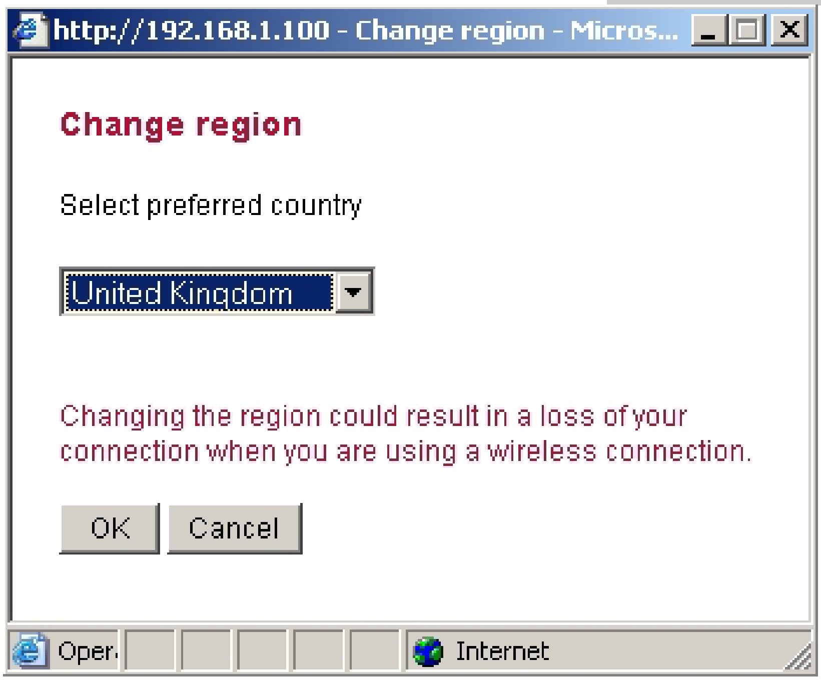
Select the country where you are using this Wireless Device, users are responsible for ensuring that the channel set configuration is in compliance with the regulatory standards of these countries.

Click on the **change region** button and a window will pop out, select the region in which you are using this AP.



**Radio settings:**

Regulatory Domain: ETSI change region...



http://192.168.1.100 - Change region - Micros...

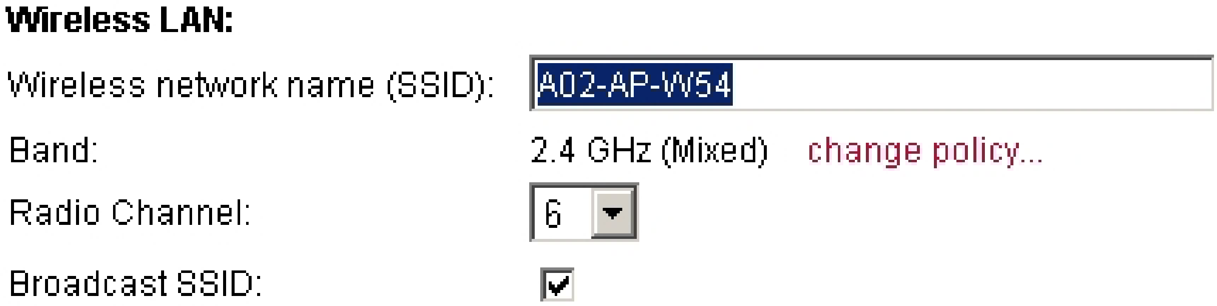
Change region

Select preferred country

United Kingdom

Changing the region could result in a loss of your connection when you are using a wireless connection.

**Wireless LAN:** to configure the wireless networking settings.



Wireless LAN:

| | |
|---|---|
| Wireless network name (SSID): | A02-AP-W54 |
| Band: | 2.4 GHz (Mixed) change policy... |
| Radio Channel: | 6 |
| Broadcast SSID: | ☑ |

1. **Wireless Network Name (SSID):**. It is an ASCII string up to 32 characters used to identify a WLAN that prevents the unintentional merging of two co-located WLANs. The SSID value must be the same in all stations and AP in the extended WLAN.
2. **Band:** you can select to change the radio band to mixed mode, G-only or B-only, a window will pop out to change the policy, it may result in a loss of the connection when you are using wireless connection.

   ***Mixed mode:*** choosing this mode may allow users using both 802.11g and 802.11b.

   ***G-only:*** choosing this mode may allow users using only 802.11g.

   ***B-only***: choosing this mode may allow users using only 802.11b.
3. **Radio Channel:** there are 14 channels available due to different Regulatory Domain. The channels differ from country to country; select the channel to be used.

4. **Broadcast SSID:** when enable this function, this AP will broadcast the SSID to the stations; if the function was disable, the stations must know the AP SSID in advance.

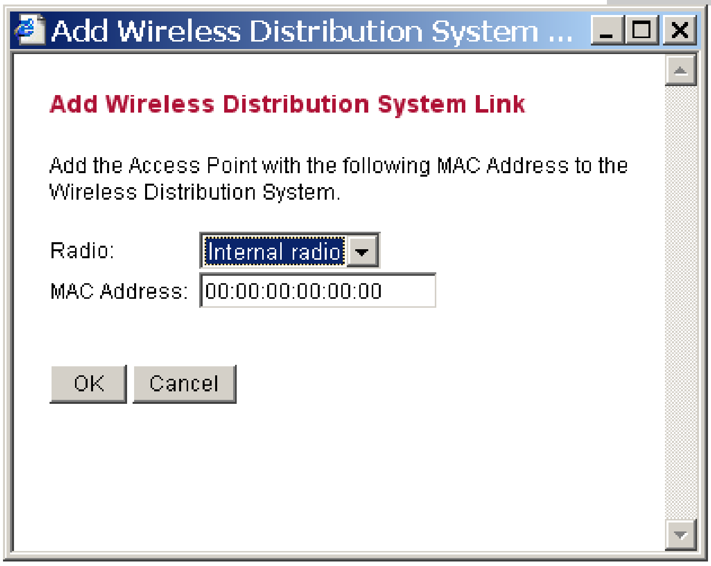
⚠ The range of radio frequencies used by IEEE 802.11g wireless devices is called a "channel". Channels available depend on your geographical area. You may have a choice of channels (for your region) so you should use a different channel than an adjacent AP (access point) to reduce interference. Interference occurs when radio signals from different access points overlap causing interference and degrading performance.
Adjacent channels partially overlap however. To avoid interference due to overlap, your AP should be on a channel at least five channels away from a channel that an adjacent AP is using. For example, if your region has 11 channels and an adjacent AP is using channel 1, then you need to select a channel between 6 or 11.

### 3.4.3 WDS Links

WDS (Wireless Distribution System) uses wireless media to communicate with other APs. When you enter the screen of the WDS, there are list of other APs will appear, click enable in the left side of the screen and click apply to add the AP to your WDS Link, or click the **Add WDS Link** button to add the APs that you need to add.

This WDS Link will scan only other APs channel within the range of 3 channels among your AP radio channel, two other ways to connect to the APs that are not listed in the WDS Link.

1. Click the **Add WDS Link** button, a window will pop out, type in the MAC address of the AP that you need to communicate.
2. Change your AP radio channel within the range of 3 channels to scan the AP that you want to connect.



Add Wireless Distribution System ...

**Add Wireless Distribution System Link**

Add the Access Point with the following MAC Address to the Wireless Distribution System.

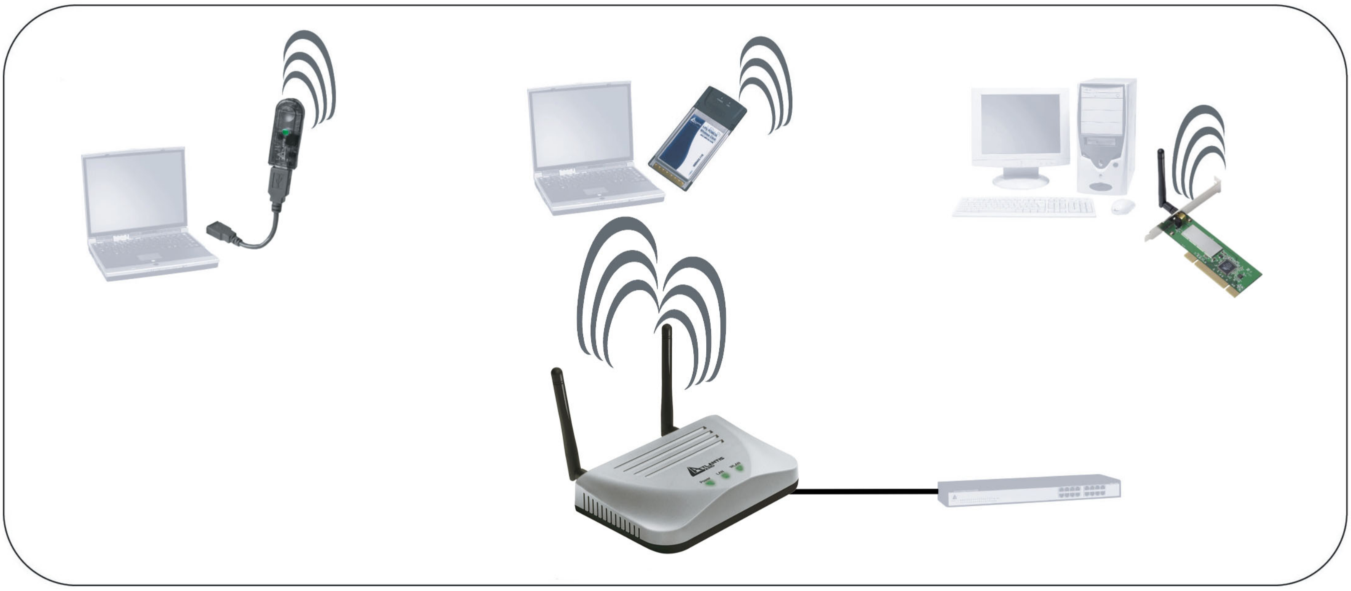
Radio: Internal radio

MAC Address: 00:00:00:00:00:00

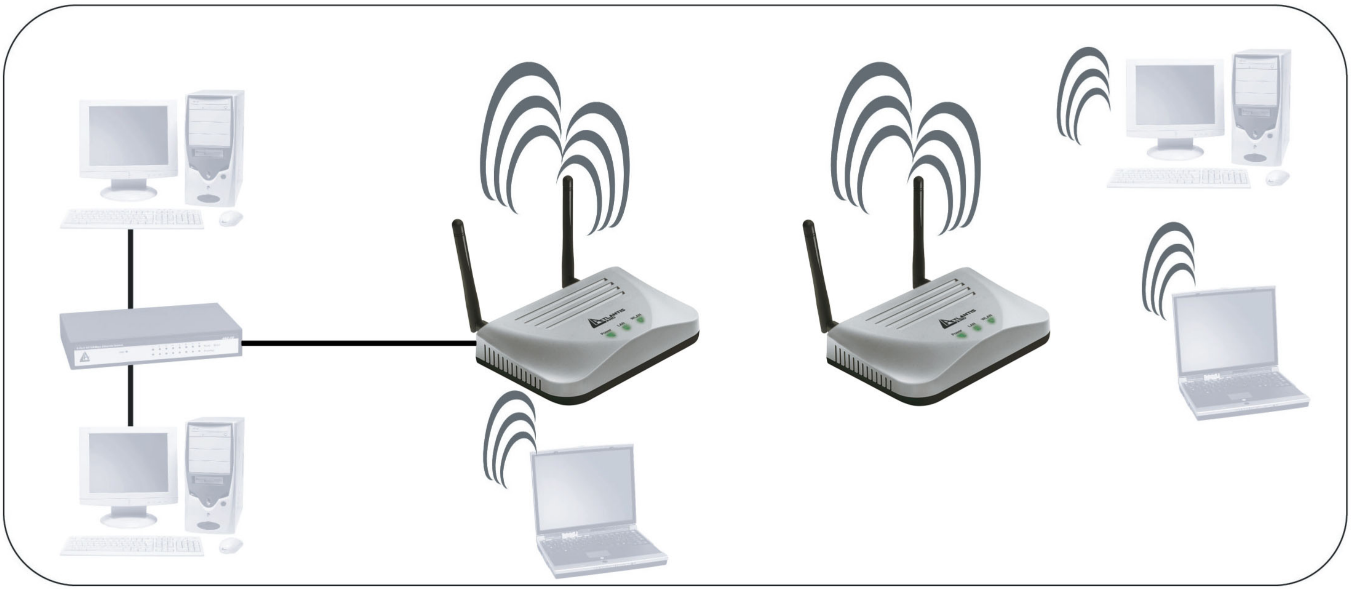
To remove an AP in the WDS Link list, unclick the enable dialog box to remove the WDS Link where you set before.

In Addition, make sure you configure all WDS APs to work on the same radio channel and in the same WEP key.

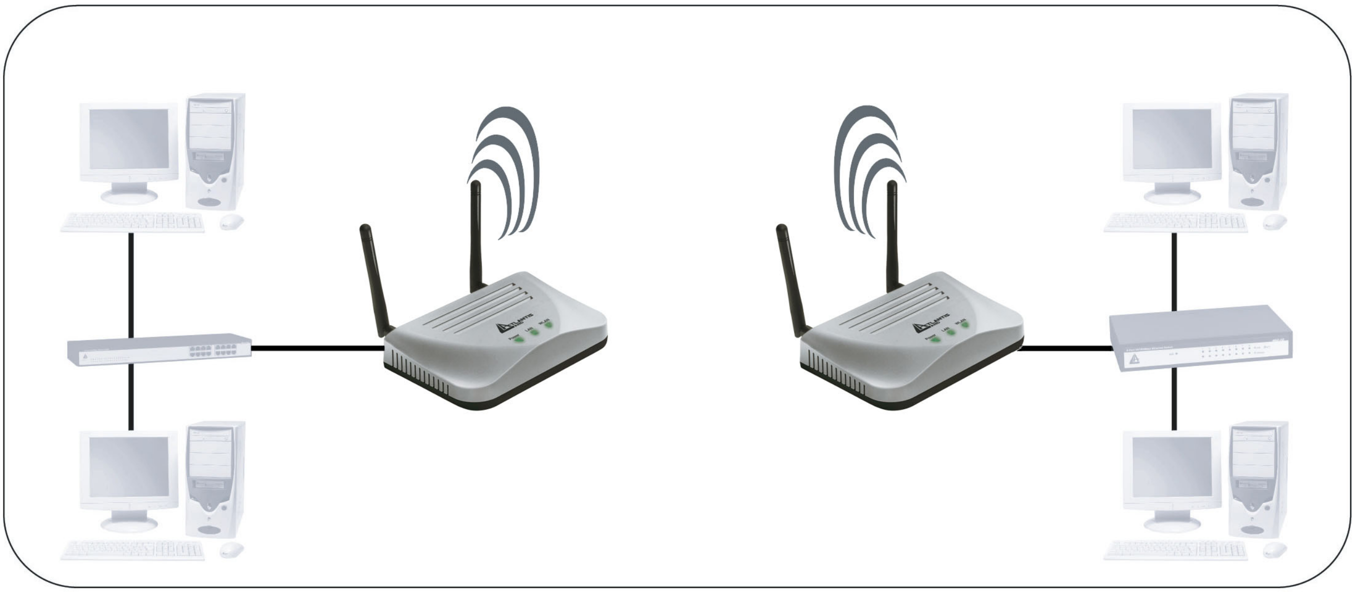
**Access Point (WDS disable):** The normal Access Point operating mode which forms a wireless ESS network with its wireless clients. In figure an example of configuration.



**Repeat Mode (WDS enable):** It is able to extend the effective range and coverage of the wireless network. Please make sure the SSID is the same as that AP you want to extend. Wireless LAN is Half Duplex, so one transaction pass-through 2 wireless its real data-rate will be half of normal one. In figure an example of configuration.



**Wireless Bridge(WDS anable and ACL enable):** A pair of APs operating under Bridge mode to act as the bridge that connect two Ethernet networks or Ethernet enabled clients together. You must make sure that the SSID and Channel is set the same as that AP you wish to connect. **Remote Bridge MAC filed**: key in the **LAN Mac address** of the AP that you wish to get connected. In figure an example of configuration.

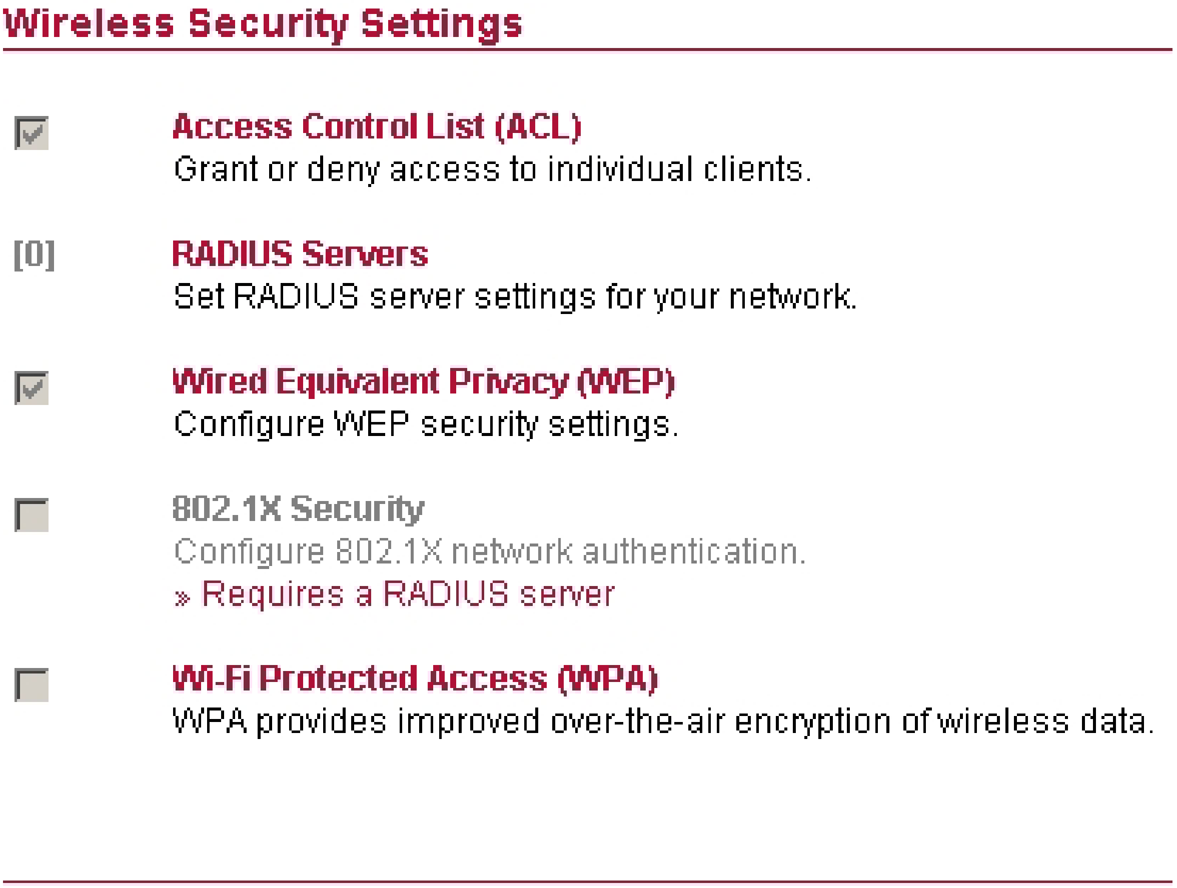


You must make sure that the SSID, Encryption and Channel is set the same as that AP you wish to connect.
When WDS is enable only WEP ecryption is supported.

## 3.5 Security

This function is used to protect wireless communication from eavesdropping. A secondary function of encryption is to prevent unauthorized access to a wireless network, and it can be achieved by using the Encryption function.

This AP provides three modes for Security Encryption: **WPA, 802.1x** and **WEP.**



Wireless Security Settings

☑ Access Control List (ACL)
Grant or deny access to individual clients.

[0] RADIUS Servers
Set RADIUS server settings for your network.

☑ Wired Equivalent Privacy (WEP)
Configure WEP security settings.

□ 802.1X Security
Configure 802.1X network authentication.
» Requires a RADIUS server

□ Wi-Fi Protected Access (WPA)
WPA provides improved over-the-air encryption of wireless data.

When there are security function enable, it will show check sign or numbers on the left side of the screen.

- Check sign means that the function is enable.
- The numbers shows that how many Radius servers were set.

## 3.5.1 Access Control List

Access Control function allows clients whose MAC addresses in the list will be able to connect to this Access Point. When this function is activate, there is no wireless clients will be able to connect to the Access Point unless they are listed in the Access Control list.

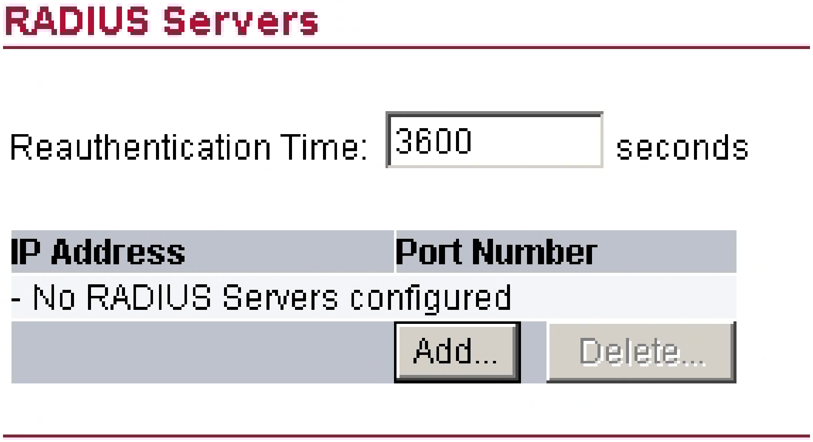
- **Default Access:** select the Accept will allows the clients on the list to connect to this AP, and select Reject to disable the clients on the list to connect to the AP.
- **Specific Clients:** add the MAC address list of the clients that the manager want to control, the manager can control the specific clients in the list to enable or disable accessing with the AP.

## 3.5.2 Radius Servers

A RADIUS server is used to authenticate the connection for clients and return authentication key parameters to the users to connect to the wireless networking.

RADIUS (Remote Authentication Dial-In User Service) utilizes a RADIUS server for authentication and the use of dynamic TKIP, AES, or WEP.

**Re-authentication Time:** type in how long the seconds that you want to re-authentication with the client.

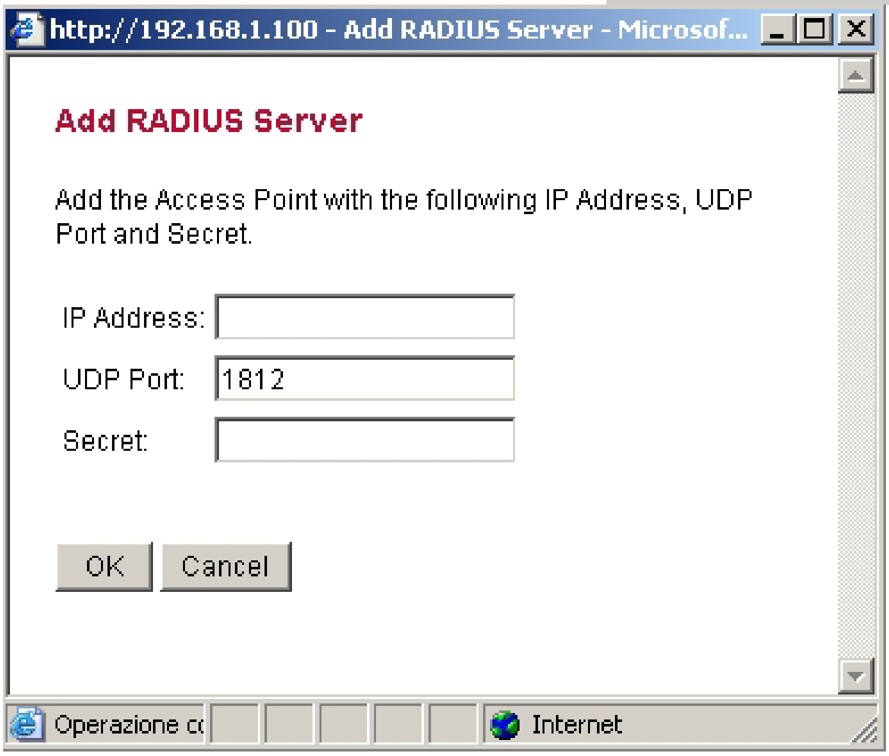


RADIUS Servers

Reauthentication Time: 3600 seconds

| IP Address | Port Number |
|---|---|
| - No RADIUS Servers configured | |

Click **Add** button to add the Radius Server IP Address, Server UDP port and Secret. The secret is a key between the AP and the Radius Server.



Add RADIUS Server

Add the Access Point with the following IP Address, UDP Port and Secret.

IP Address:

UDP Port: 1812

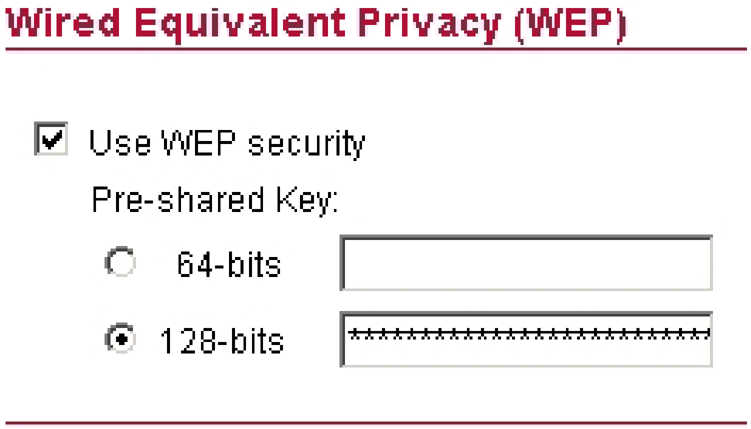
Secret:

## 3.5.3 Wired Equivalent Privacy (WEP)

WEP encryption implementation was not put in place with the 802.11 standard. This means that there are about as many methods of WEP encryption as there are providers of wireless networking products. In addition, WEP is not completely secure. One piece of information still not encrypted is the MAC address, which hackers can use to break into a network by spoofing (or faking) the MAC address.

⚠ WEP is not completely secure. If possible please use WPA-PSK.

When choose the encryption to WEP mode, click the **Use WEP Security** to enable the WEP security function, some setting as follow:



Wired Equivalent Privacy (WEP)

☑ Use WEP security

Pre-shared Key:

○ 64-bits

● 128-bits **************************

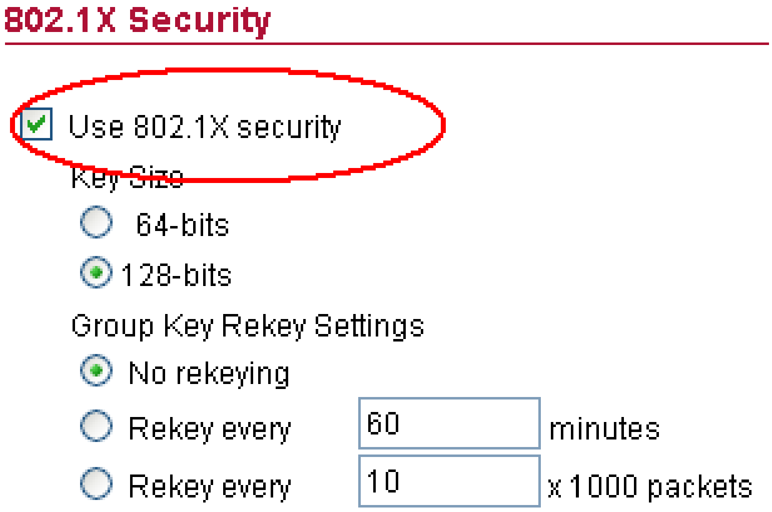
**64-bits:** selecting the 64bit, you must type 10 values in the following range (0~F, hexadecimal).

**128-bits:** selecting the 128bit, you must type 26 values in the following range (0~F, hexadecimal).

## 3.5.4 802.1x Security

To address the shortcomings of WEP for authentication, the industry is working towards solutions based on the 802.1x specification, which is based on the Extensible Authentication Protocol (EAP). EAP was designed with flexibility in mind, and it has been used as the basis for a number of network authentication extensions.

Click to enable the 802.1x security function.



802.1X Security

☑ Use 802.1X security

Key Size

○ 64-bits

● 128-bits

Group Key Rekey Settings

● No rekeying

○ Rekey every 60 minutes

○ Rekey every 10 x 1000 packets

Selecting the 64bit or 128-bit for the key size of the 802.1x security.

E’ infine possibile parametrizzare il rinnovo delle chiavi.

**No Rekeying:** the clients will not need to re-key the password to authenticate with the Radius Server.

**Rekeying Time:** type in the time for when the manager want clients to re-keying the password for authentication and security.

**Rekeying packets:** type in the numbers of packets in which the manager want to control every client to re-key the password when the number of every 1000 packets was transmitted.

## 3.5.5 Wi-Fi Protected Access (WPA)

Wi-Fi Protected Access (WPA) is the newest and best available standard in Wi-Fi security. Two modes are available: Pre-Shared Key and RADIUS. Pre-Shared Key gives you a choice of two encryption methods: TKIP (Temporal Key Integrity Protocol), which utilizes a stronger encryption method and incorporates Message Integrity Code (MIC) to provide protection against hackers, and AES (Advanced Encryption System), which utilizes a symmetric 128-Bit block data encryption.

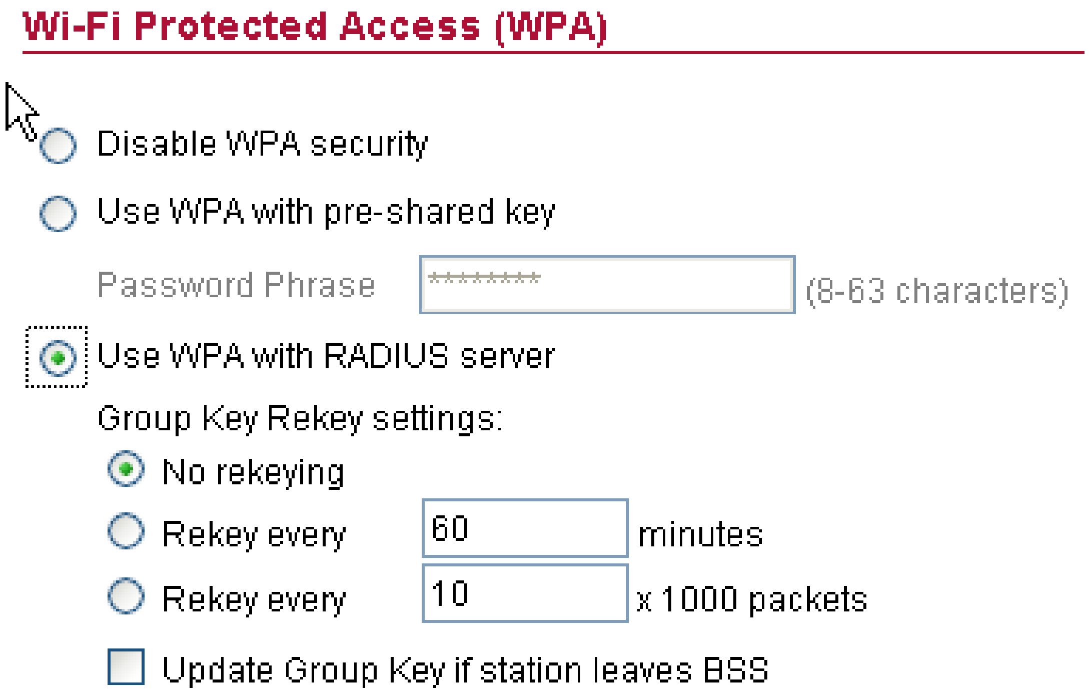
- **Disable WPA Security:** to disable the WPA security.
- **Use WPA with Pre-Shared Key:** type in 8 ~ 63 characters inside the dialog box to have the WPA password between the AP and the clients.
- **Use WPA with Radius Server:** the authentication between the Radius Server, the AP and the clients using the Group Key Re-key Settings.

  **No Rekeying:** the clients will not need to re-key the password to authenticate with the Radius Server.

  **Rekeying Time:** type in the time for when the manager want clients to re-keying the password for authentication and security.

  **Rekeying packets:** type in the numbers of packets in which the manager want to control every client to re-key the password when the number of every 1000 packets was transmitted.

  **Update Group Key:** to update the password when the station or the client leaves the Networking Group (BSS, Basic Service Set).



Wi-Fi Protected Access (WPA)

○ Disable WPA security

○ Use WPA with pre-shared key

Password Phrase ********* (8-63 characters)

● Use WPA with RADIUS server

Group Key Rekey settings:

● No rekeying

○ Rekey every 60 minutes

○ Rekey every 10 x 1000 packets

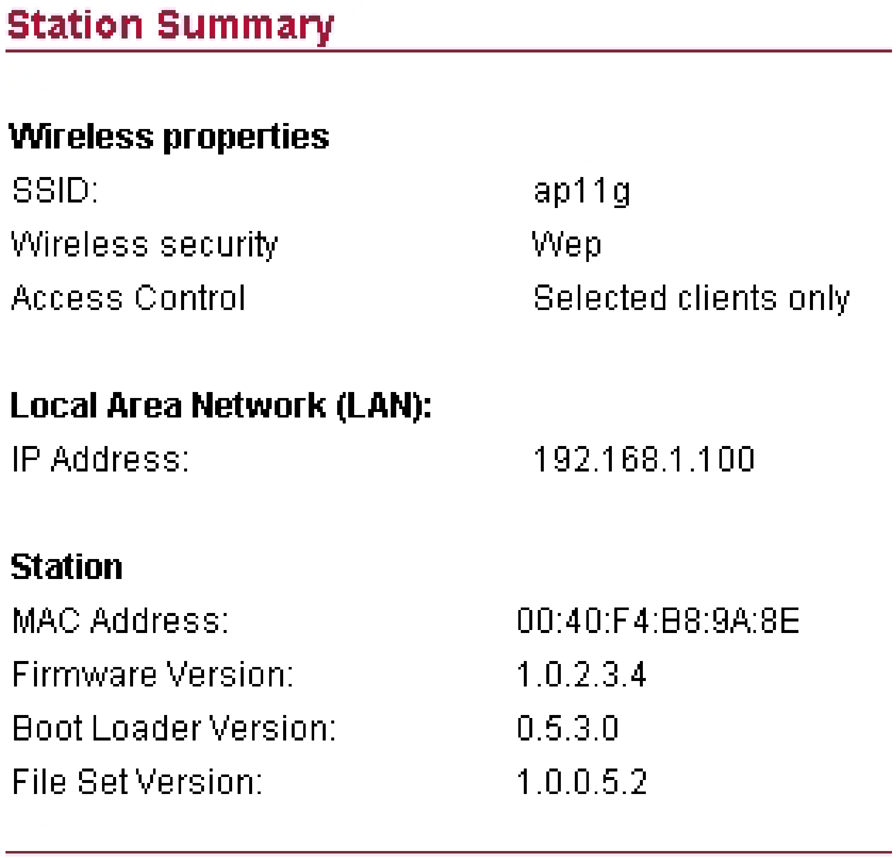
□ Update Group Key if station leaves BSS

## 3.6 Status

This function will show the statistics of the Station, Wireless Statistics and Event Reporting.

### 3.6.1 Status

This screen will show the status summary of the system.



Station Summary

**Wireless properties**

| | |
|---|---|
| SSID: | ap11g |
| Wireless security | Wep |
| Access Control | Selected clients only |

**Local Area Network (LAN):**

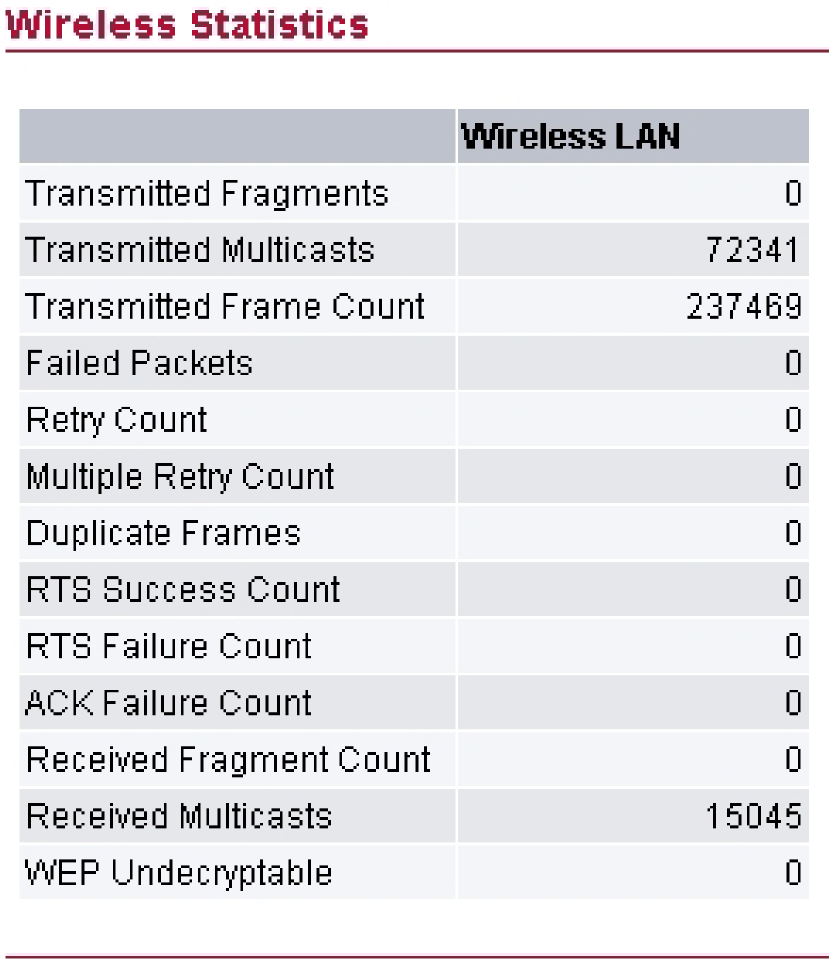
| | |
|---|---|
| IP Address: | 192.168.1.100 |

**Station**

| | |
|---|---|
| MAC Address: | 00:40:F4:B8:9A:8E |
| Firmware Version: | 1.0.2.3.4 |
| Boot Loader Version: | 0.5.3.0 |
| File Set Version: | 1.0.0.5.2 |

## 3.6.2 Wireless Statistics

This screen shows the statistics of the wireless AP.



Wireless Statistics

| | Wireless LAN |
|---|---|
| Transmitted Fragments | 0 |
| Transmitted Multicasts | 72341 |
| Transmitted Frame Count | 237469 |
| Failed Packets | 0 |
| Retry Count | 0 |
| Multiple Retry Count | 0 |
| Duplicate Frames | 0 |
| RTS Success Count | 0 |
| RTS Failure Count | 0 |
| ACK Failure Count | 0 |
| Received Fragment Count | 0 |
| Received Multicasts | 15045 |
| WEP Undecryptable | 0 |

## 3.6.3 Event Report

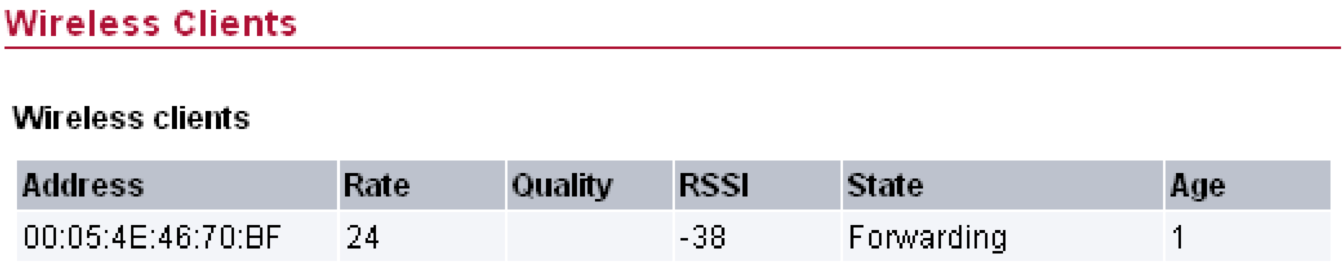
This screen shows the event happened on the AP, press **Reset Event Log** to clear the record of the event happened.

## 3.7 Clients

This function shows the list of the wireless surrounded this AP.

### 3.7.1 Wireless Clients

This function shows the list of the wireless clients that connected to this AP.



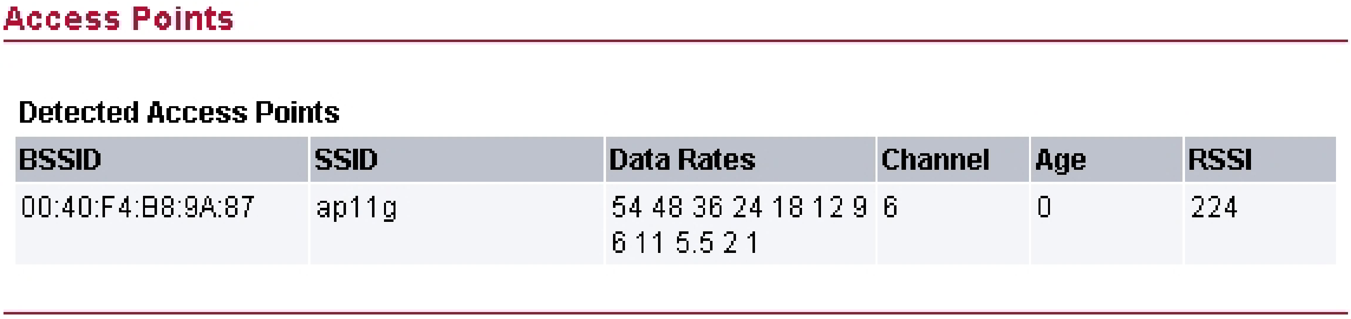
Wireless Clients

Wireless clients

| Address | Rate | Quality | RSSI | State | Age |
|---|---|---|---|---|---|
| 00:05:4E:46:70:BF | 24 |  | -38 | Forwarding | 1 |

### 3.7.2 Access Point

This function shows the list of the Wireless Access Point that this AP can connect with, this is the list that you can use for WDS Links, refer for the WDS Links on



Access Points

Detected Access Points

| BSSID | SSID | Data Rates | Channel | Age | RSSI |
|---|---|---|---|---|---|
| 00:40:F4:B8:9A:87 | ap11g | 54 48 36 24 18 12 9 6 11 5.5 2 1 | 6 | 0 | 224 |

## 3.8 Tools

This function will help you to upgrade the firmware of the AP:

1. Please download last firmware from **www.atlantis-land.com**
2. Press **Upgrade Firmware**
3. Press **Next**
4. Type the firmware file that you need to upgrade inside the dialog box, or press the **Browse** (or **Sfoglia**) button to find the firmware file location.
5. Press **Upgrade** button to proceed the upgrade procedure.

When finish uploading the file to the AP, ***do not power off the AP until the "Firmware Upgrade Complete" screen appears.***

Press the **Reset** button on the rear panel of the AP, to set back to factory default setting.

Do NOT upgrade firmware on any Atlantis Land product over a wireless connection. Failure of the device may result. Use only hard-wired network connections.

After upgrading you must reset the router to factory default settings, then manually re-enter your settings.

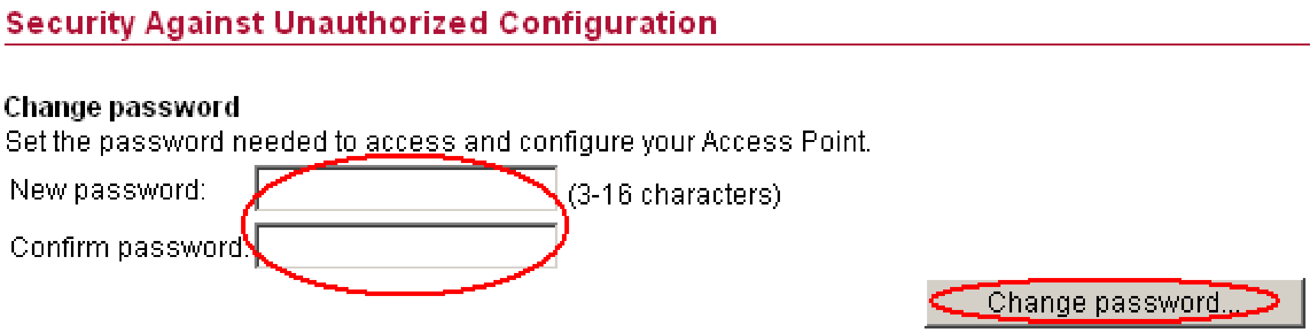
⚠ Please pay attention. In case electrical shutdown, during this procedure, this product could be not usable.

When uploading software to theWireless Multi-Function Access Point, it is important not to interrupt the Web browser by closing the window or loading a new page. If the browser is interrupted, it may corrupt the software

# 3.9 Configurations

## 3.9.1 Change Password

This function will help you to configure the password of the AP, type in the new password inside the New password and Confirm password dialog box, press the **Change password** button to activate this function.



Security Against Unauthorized Configuration

**Change password**

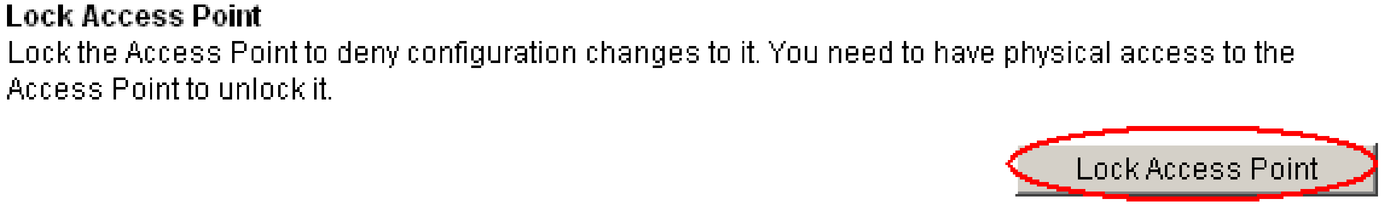
Set the password needed to access and configure your Access Point.

New password: (3-16 characters)

Confirm password:

## 3.9.2 Lock Access Point

Lock the Access Point to deny configuration changes to it. You need to have physical access to the Access Point to unlock it, press the reset button on the rear panel of the AP to unlock.



**Lock Access Point**

Lock the Access Point to deny configuration changes to it. You need to have physical access to the Access Point to unlock it.

# APPENDIX A: Troubleshooting

This chapter covers potential problems and the corresponding remedies.

## A.1 Using LEDs to Diagnose Problems

The LEDs are useful aides for finding possible problem causes.

### A.1.1 LED Power

The PWR LED on the front panel does not light up.

| Steps | CORRECTIVE ACTION |
|---|---|
| 1 | Make sure that the Wireless Access Point's power adaptor is connected to the Access Point and plugged in to an appropriate power source. Use only the supplied power adaptor. |
| 2 | Check that the Wireless Access Point and the power source are both turned on and the Wireless Access Point is receiving sufficient power. |
| 3 | If the error persists, you may have a hardware problem. In this case, you should contact your vendor. |

### A.1.2 LED LAN

The LAN LED on the front panel does not light up.

| Steps | CORRECTIVE ACTION |
|---|---|
| 1 | Check the Ethernet cable connections between the Access Point and the computer or hub. |
| 2 | Check for faulty Ethernet cables. |
| 3 | Make sure your computer's Ethernet card is working properly. |
| 4 | If these steps fail to correct the problem, contact your local distributor for assistance. |

## A.1.3 LED WLAN

The WLAN LED on the front panel does not light up.

| Steps | CORRECTIVE ACTION |
|---|---|
| 1 | Press the “Reset” button on the rear panel of the AP, to set back to factory default setting. |
| 2 | Please unplug AC Adaptor and replug-it. |
| 3 | If these steps fail to correct the problem, contact your local distributor for assistance. |

## A.2 WEB

I cannot access the web configurator.

| Steps | CORRECTIVE ACTION |
|---|---|
| 1 | Make sure you are using the correct IP address of the Wireless Multi-Function Access Point. Check the IP address of the Access Point (192.168.1.100).. |
| 2 | Check **ACL** (on Security). Access Control function allows clients whose MAC addresses in the list will be able to connect to this Access Point. When this function is activate, there is no wireless clients will be able to connect to the Access Point unless they are listed in the Access Control list. |
| 3 | |
| 4 | Check **Lock Access Point** (Configuration). Lock the Access Point to deny configuration changes to it. You need to have physical access to the Access Point to unlock it, press the reset button on the rear panel of the AP to unlock. |
| 5 | Press the “Reset” button on the rear panel of the AP, to set back to factory default setting. |

The web configurator does not display properly.

| Steps | CORRECTIVE ACTION |
|---|---|
| 1 | Make sure you are using Internet Explorer 5.0 and later versions. |
| 2 | Delete the temporary web files and log in again.<br>In Internet Explorer, click Tools, Internet Options and then click the Delete Files ... button.<br>When a Delete Files window displays, select Delete all offline content and click OK. (Steps may vary depending on the version of your Internet browser.) |

## A.3 Login

If you forget the password to log in

| Steps | CORRECTIVE ACTION |
|---|---|
| 1 | The Reset function is to reset the setting back to factory default setting, once you press the "RESET" button within 10 seconds, the LED of the WLAN will turn off. And when the Access Point is ready, the WLAN LED will start blinking.<br>And the other function is when the AP is locked, press the reset button to unlock it. |
| 2 | Before configurating thisWireless Multi-Function Access Point, you need to know the following default settings.<br>**Username:**<br>**Password :**<br>**IP Address : 192.168.1.100**<br>**Subnet Mask : 255.255.255.0**<br>**Wireless: SSSID= default, Channel=6, WEP=disable** |

## A.4 FAQ

| Question | Can I run an application from a remote computer over the wireless network? |
|---|---|
| Answer | This will depend on whether or not the application is designed to be used over a network. Consult the application's user guide to determine if it supports operation over a network. |

| Question | Can I play computer games with other members of the wireless network? |
|---|---|
| Answer | Yes, as long as the game supports multiple players over a LAN (local area network).<br>Refer to the game's user guide for more information. |

| Question | What is Spread Spectrum? |
|---|---|
| Answer | Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communications systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade-off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread-spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS). |

| Question | What is DSSS? What is FHSS? And what are their differences? |
|---|---|
| Answer | Frequency-Hopping Spread-Spectrum (FHSS) uses a narrowband carrier that changes frequency in a pattern that is known to both transmitter and receiver. Properly synchronized, the net effect is to maintain a single logical channel. To an unintended receiver, FHSS appears to be short-duration impulse noise. Direct-Sequence Spread-Spectrum (DSSS) generates a redundant bit pattern for each bit to be transmitted. This bit pattern is called a chip (or chipping code). The longer the chip, the greater the probability that the original data can be recovered. Even if one or more bits in the chip are damaged during transmission, statistical |

| | |
|---|---|
| | techniques embedded in the radio can recover the original data without the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers. |

| **Question** | Would the information be intercepted while transmitting on air? |
|---|---|
| **Answer** | WLAN features two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent security feature of scrambling. On the software side, WLAN offers the encryption function (WEP) to enhance security and access control. |

| **Question** | What is WEP? |
|---|---|
| **Answer** | WEP is Wired Equivalent Privacy, a data privacy mechanism based on a 64-bit or 128-bit shared key algorithm, as described in the IEEE 802.11 standard. |

| **Question** | What is infrastructure mode? |
|---|---|
| **Answer** | When a wireless network is set to infrastructure mode, the wireless network is configured to communicate with a wired network through a wireless access point. |

| **Question** | What is roaming? |
|---|---|
| **Answer** | Roaming is the ability of a portable computer user to communicate continuously while moving freely throughout an area greater than that covered by a single access point. Before using the roaming function, the workstation must make sure that it is the same channel number with the access point of dedicated coverage area. |

| **Question** | What is ISM band? |
|---|---|
| **Answer** | The FCC and their counterparts outside of the U.S. have set aside bandwidth for unlicensed use in the ISM (Industrial, Scientific and Medical) band. Spectrum in the vicinity of 2.4 GHz, in particular, is being made available worldwide. This presents a truly revolutionary opportunity to place convenient high-speed wireless capabilities in the hands of users around the globe. |

| Question | What is the IEEE 802.11g standard? |
|---|---|
| Answer | Approved in June, 2003 as an IEEE standard for wireless local area networks (WLANs), 802.11g offers wireless transmission over relatively short distances at up to 54 megabits per second (Mbps) compared with the 11 megabits per second of the 802.11b (Wi-Fi) standard. Like 802.11b, 802.11g operates in the 2.4 GHz range and is thus compatible with it. |

# APPENDIX B: Technical Features

| | |
|---|---|
| Standards | Standard: IEEE 802.11g/b<br>IEEE 802.3u 10/100BASE-TX Fast Ethernet |
| Advanced | Wireless Distribution System (Bridge and Repeat)<br>Intersil Prism GT |
| Signal Type: | OFDM (Orthogonal Frequency Division Multiplexing) |
| Modulation: | QPSK / BPSK / CCK / OFDM |
| LED Indicators: | Power, LAN (Link/Activity), WLAN (Link) |
| Frequency Range | 2412 ~ 2484 MHz ISM band (channels 1 ~ 14) |
| Frequency Band: | 2.4 GHz |
| Channel: | 1 ~ 11 Channels (US, Canada, China)<br>1 ~ 13 Channels (Europe)<br>1 ~ 14 Channels (Japan) |
| Data Encryption: | 64 bit / 128 bit WEP Encryption, WPA |
| Data Transfer Rate | Fast Ethernet: 100Mbps<br>Wireless: Up to 54Mbps (with Automatic Scale Back) |
| Receiver Sensitivity | 54Mbps: Typical -68dBm @10% PER<br>11Mbps: Typical -81dBm @8% PER |
| Transmit Power | 802.11g: Minimum 12dBm typically<br>802.11b: Minimum 15dBm typically |
| Transmission Range: | Outdoor: 100~300M (depends on environment)<br>Indoor: 50~100M (depends on environment) |
| Network Cables | 10BASET: 2-pair UTP Cat. 3,4,5 (100 m) |
| Interface | 1 x 10/100Mbps RJ45 port |
| Antenna: | 2 x 2dBi Dipole Antenna |
| Chipset | ISL3893 ARM9 |
| DC inputs | DC 5V /1.2A |
| Power Consumption | 3W (Max) |
| Temperature | Operating: 0° ~ 40° C, Storage: -10° ~ 70° C |
| Humidity | Operating: 10% ~ 90%, Storage: 5% ~ 90% |
| Dimensions | 140 x 98 x 30 mm (W x H x D) without Antenna |

# APPENDIX C: Support

If you have any problems with the WirelessMulti-Function Access Point, please consult this manual. If you continue to have problems you should contact the dealer where you bought this device. If you have any other questions you can contact the Atlantis Land company directly at the following address:

Atlantis Land SpA
Viale De Gasperi 122
20017 Mazzo di Rho(MI)
ITALY

Tel: **039.02.93907634(help desk)**
Fax: **039.02.93906161**
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